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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/674,665	05/14/2001	Mordechai Segal	TI-30245	1323
23494	7590	05/25/2005	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			LUGO, DAVID B	
			ART UNIT	PAPER NUMBER
			2637	
DATE MAILED: 05/25/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/674,665

Applicant(s)

SEGAL ET AL.

Examiner

David B. Lugo

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 23-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 23-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see page 5, last paragraph, filed 12/6/04, with respect to the rejection(s) of claim(s) 23 and 27 under 35 U.S.C. 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of a newly found prior art reference.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 23 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Decker et al. U.S. Patent 4,980,897.

4. Regarding claims 23 and 27, Decker et al. disclose a communication arrangement in Figure 1 comprising a 1:N rate encoder (multi-channel encoder 2) coupled to an input data stream and configured to reproduce a symbol N times, a transmission arrangement (multi-channel transmitter 3) configured to use a plurality of outputs to transmit each reproduced symbol using a distinct transmission channel, and a receiver 5 coupled to the transmission arrangement and configured to perform soft-combining via decoder 6 which performs the Viterbi algorithm (col. 12, lines 3-10) of signals received from the outputs of the transmission arrangement and to output an estimate of the symbol (see col. 3, line 48 to col. 4, line 2).

Art Unit: 2637

5. Claims 24 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Decker et al. in view of Sayiner et al. U.S. Patent 6,097,769.

6. Regarding claims 24 and 28, Decker et al. disclose a communication arrangement as disclosed above, where the soft-combining performed via the Viterbi algorithm comprises mean squared error (MSE) estimation, as the algorithm selects a path based on the squared Euclidean distance that results in a lowest metric (col. 13, lines 6-22). Further Sayiner et al. expressly states that a Viterbi detector chooses a mostly likely transition based on minimizing the MSE (see col. 2, lines 43-46).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 25 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Decker et al. in view of Lathrop U.S. Patent 5,701,427.

9. Regarding claims 25 and 29, Decker et al. disclose a communication arrangement as described above, but do not expressly disclose transmitting an original message using one of the channels and performing retransmission using a remaining channel.

10. Lathrop discloses a communication arrangement where an information message is transmitted over a channel on a communications link 12, and a second retransmit channel is used to transmit retransmission information (col. 7, lines 22-33).

Art Unit: 2637

11. It would have been obvious to one of ordinary skill in the art to use a channel for retransmission that is separate from that used to transmit an original message in order to allow for retransmission of data not accurately received without interrupting the transmission of the original message.

12. Claims 26 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Decker et al. in view of Fenwick et al. U.S. Patent 4,001,692.

13. Regarding claims 26 and 30, Decker et al. disclose a communication arrangement as described above, where a plurality of bits are used to represent a symbol to be transmitted (col. 4, lines 48-52), but do not expressly disclose that the transmission channels are used to transmit the information bits using a delay-encoded mapping scheme.

14. Fenwick et al. disclose a communication system where a serial input data stream is converted to three or more transmitted data streams, where the transmitter data streams are successively delayed in order to obtain time diversity (col. 2, lines 9-15).

15. It would have been obvious to one of ordinary skill in the art to use the delay encoded scheme of Fenwick et al. in the system of Decker et al. in order to achieve time diversity.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David B. Lugo whose telephone number is 571-272-3043. The examiner can normally be reached on M-F; 9:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2637

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Lugo  
5/23/05

  
**KHAI TRAN**  
**PRIMARY EXAMINER**